-m/023/007

390 South 600 East St. George, UT 84770 PHONE/FAX (435) 634-1584



North Lily Mining Company Silver City Operation

DIV. OF OIL, GAS & MINING

RICK LEN

October 25, 1997

State of Utah
Attn: Compliance and Monitoring Program
Division of Water Quality
288 North 1460 West
P.O. Box 144870
Salt Lake City, Utah 84114-4780

RE: Third Quarter Monitoring Report 1997

Dear Compliance and Monitoring Personnel:

In compliance with Part II of the Ground Water Discharge Permit No. 23000 issued to North Lily Mining Company in May 1991 and extended in August 1996, please find enclosed:

- 1. Well water analysis for third quarter of 1997
- 2. Spillway sample for the third quarter 1997
- 3. Overflow pond sample

Due to the reclamation work completed during the fourth quarter 1996, ie the contouring and grading of the heap lead pad the spill ways were filled and a modified drainage system was installed thus altering the need for monitoring the sumps. During the first quarter of 1997 the sumps were not monitored. If solution were to become trapped in the sumps, the chemical composition of the solution would be similar to that of the spillway sample.

A well water sample was delivered to Chemtec/Ford, a Utah certified laboratory, on October 1, 1997 for analysis with a request that the water be analyzed per the specification required by the Division of Water Quality.

A spillway sample was taken at the same time and delivered to Chemtec/Ford to monitor the reduction of metals and cyanide in the solution coming off the heap leach pads. This has been done to enable North Lily to better meet and comply with state and federal water quality standards. The following table outlines the progress to date on some of the metals and cyanide (all analysis are reported in mg/l):

Page 2 Third Quarter Monitoring Report 1997

QU	*GROUND WATER	DETECTED IN								
	QUALITY STANDARD	JUN 95	DEC 95	MAR 96	JUN 96	SEP 96	DEC 96	MAR 97	JUN 97	OCT 97
Fluoride as F	2.4	4.94	5.7	3.5	5.9	1.6	5.4	3.4	3.1	3.3
Arsenic as As	0.05	0.59	0.500	1.3	0.63	0.44	0.31	0.40	0.06	0.26
Barium as Ba	2.0	0.018	< 0.20	< 0.05	0.02	0.02	<0.2	0.02	0.03	0.041
Cadmium as Cd	0.005	<.001	<0.05	< 0.025	< 0.02	0.008	<0.1	< 0.01	< 0.01	<0.01
Chromium as Cr	0.1	<.007	< 0.05	< 0.025	0.041	0.040	< 0.1	< 0.005	<0.04	<0.005
Copper as Cu	1.3	283	188	162	161	102	80.2	69.6	55.0	40.8
Lead as Pb	0.015	0.066	0.100	< 0.04	0.14	0.11	1.3	0.13	0.10	0.35
*Mercury as Hg	0.002	0.0020	0.329	0.39	0.40	0.27	0.31	0.35	0.051	0.42
Selenium as Se	0.05	0.24	0.024	0.03	< 0.02	0.02	0.05	0.08	0.02	< 0.02
Silver as Ag	0.05	1.8	3.43	0.56	1.32	7.74	< 0.1	1.240	77.0	61.7
Zinc As Zn	5.0	0.500	0.20	0.08	0.30	0.35	<0.2	0.17	0.03	0.06
Cyanide as CN-T	0.75	256	*NOTE	163	149	91	62	61	19.6	43
Cyanide as CN-Wad		239	169	153	156	93	64	63	19.2	34.7
pH	6.5 to 8.5	8.82	8.95	9,39	9.20	8,6	8.7	9.00	9.10	8.5

- * Administrative Rules For Ground Water Quality Protection Effective Date of Last Revision March 20, 1995
- * Digested analyzed by AWAL

As the above table indicates, the effluent coming from off the heap leach pad show significant reductions in several metals and total and wad cyanide levels.

On May 22, 1997 DWQ approved North Lily's March 5, 1997 application for it's Fluid Disposal Plan. As of October 1, 1997 approximately 880,000 gallons of heap leach runoff water has been disposed of on land adjacent to the heap leach pads. Land application of the heap leach runoff water has been suspended for the time being. The barren pond has approximately 100,000 gallons in it and the preg pond has approximately 150,000 in it. Flow coming off the pad at this time is estimated at 5 gallons per minute.

Rain water that has been collecting in the overflow pond over the past year was land applied during in the third quarter. A sample of this collected rain water was submitted to Chemtech-Ford with the well water and spillway samples on October 1, 1997. A copy of the certificate of analysis is attached.

Thank you for your consideration and if you have questions, comments or concerning please contact Paul Spor at (801) 634-1584.

Paul C. Spor

Sincerely.

General Manager

cc: Roger A. Foisy, Division of Water Quality
Tom Munson, Division of Oil, Gas, and Mining
Tom Gast, Environmental Management Services





To: North Lily Mining Company

attn: Paul Spor 390 South 600 East St. George, UT 84770

Group #: 18647

Lab #: 97-U011032 Project: SILVER CITY

Sample Desc: Well Water Tap

Date Sampled: 10/ 1/97 Date Submitted: 10/ 1/97 Time Sampled: 12:15 Time Received: 13:55

CERTIFICATE OF ANALYSIS

			DATE		•
PARAMETER	RESULT	MDL	ANALYZED	METHOD	analyst
INORGANIC PARAMETERS					
Bicarbonate as HCO3, mg/L	129	1	10/ 7/97 10:30	SM 2320B	TM
Carbonate as CO3, mg/L	< 1	1	10/ 7/97 10:30	SM 2320B	TM
Alkalinity, Solids, mg/L	64	1	10/ 7/97 10:30	SM 2320B	TM
Hydroxide as OH, mg/L	< 1	1	10/ 7/97 10:30	SM 2320B	MT
Alkalinity, Total (CaCO3), mg/L	106	1	10/ 7/97 10:30	SM 2320B	TM
Carbon Dioxide, mg/L	95	1	10/ 7/97 10:30	SM 4500 D	TM
Chloride (D), mg/L	139	1	10/ 3/97 17:00	EPA 325.3	TM
Conductance, Specific, umhos/cm	949.8	0.1	10/ 6/97 14:00	EPA 120.1	KRF
Cyanide (T), mg/L	< 0.002	0.002	10/10/97 15:00	ASTM D2036	TPH
Fluoride, mg/L	0.2	0.1	10/15/97 8:00	EPA 340.2	EG
Hardness, EDTA Titration, mg/L	256	17	10/11/97 11:00	EPA 130.2	MT
Hardness Index: Hard Water					
Mercury (T), as Hg, mg/L	< 0.0002	0.0002	10/ 8/97 9:35	EPA 245.1	EG
Nitrite, Nitrogen, mg/L	< 0.005	0.005	10/ 3/97 6:30		TM
Nitrate/Nitrite-Nitrogen, mg/L	0.86	0.08	10/ 6/97 11:07	EPA 353.1	LH
pH, units	7.60	0.05	10/ 1/97 15:45	EPA 150.1	LS
Phosphorus, Ortho, mg/L	< 0.01	0.01	10/ 3/97 10:30	SM 4500E	AJP
Sulfate, mg/L	87	33	10/ 6/97 10:30	EPA 375.4	TM
Total Dissolved Solids, mg/L	476	10	10/ 6/97 14:45	EPA 160.1	LS
Total Suspended Solids, mg/L	3	1	9/30/97 15:45	EPA 160.2	LS

Approved By:



To: North Lily Mining Company attn: Paul Spor 390 South 600 East St. George, UT 84770

Group #: 18647 Lab #: 97-U011032 Project: SILVER CITY

Sample Desc: Well Water Tap

Date Sampled: 10/ 1/97 Date Submitted: 10/ 1/97 Time Sampled: 12:15 Time Received: 13:55

CERTIFICATE OF ANALYSIS

	DATE				
PARAMETER	RESULT	MDL	ANALYZED	METHOD	analyst
INORGANIC PARAMETERS					
Turbidity, NTU	2.93	0.05	10/ 1/97 15:40	EPA 180.1	LS
Barium (T), as Ba, mg/L	0.054	0.005	10/ 2/97 10:59	EPA 200.7	LH
Beryllium (T), as Be, mg/L	< 0.001	0.001	10/ 2/97 10:59	EPA 200.7	LH
Calcium (T), as Ca, mg/L	51.7	0.1	10/ 2/97 10:59	EPA 200.7	LH
Chromium(T), as Cr, mg/L	< 0.005	0.005	10/ 2/97 10:59	EPA 200.7	LH
Copper (T), as Cu, mg/L	0.01	0.01	10/ 2/97 10:59	EPA 200.7	LH
Iron (T), as Fe, mg/L	0.30	0.02	10/ 2/97 10:59	EPA 200.7	LH
Magnesium (T), as Mg, mg/L	30.3	0.1	10/ 2/97 10:59	EPA 200.7	LH
Manganese (T), as Mn, mg/L	0.02	0.01	10/ 2/97 10:59	EPA 200.7	LH
Nickel (T), as Ni, mg/L	< 0.01	0.01	10/ 2/97 10:59	EPA 200.7	LH
Potassium (T), as K, mg/L	3.2	0.1	10/ 2/97 10:59	EPA 200.7	LH
Sodium (T), as Na, mg/L	53.8	0.1	10/ 2/97 10:59	EPA 200.7	LH
Zinc (T), as Zn, mg/L	0.04	0.01	10/ 2/97 10:59	EPA 200.7	LH
Antimony (T), as Sb, mg/L	< 0.002	0.002	10/ 9/97 13:33	EPA 200.9	EG
Arsenic (T), as As, mg/L	< 0.005	0.005	10/ 8/97 9:06	EPA 200.9	EG
Cadmium (T), as Cd, mg/L	< 0.001	0.001	10/ 6/97 8:46	EPA 200.9	EG
Lead (T), as Pb, mg/L	< 0.005	0.005	10/ 7/97 14:01	EPA 200.9	EG
Selenium (T), as Se, mg/L	0.005	0.002	10/ 7/97 10:13	EPA 200.9	EG
Silver (T), as Ag, ug/L	< 0.5	0.5	10/10/97 10:04	EPA 200.9	EG
Thallium (T), as Tl, mg/L	< 0.001	0.001	10/ 9/97 9:49	EPA 200.9	EG

Approved By:

& Dann





To: North Lily Mining Company attn: Paul Spor 390 South 600 East St. George, UT 84770

Group #: 18647 Lab #: 97-U011032 Project: SILVER CITY

Sample Desc: Well Water Tap

Date Sampled: 10/ 1/97 Date Submitted: 10/ 1/97

Time Sampled: 12:15 Time Received: 13:55

CERTIFICATE OF ANALYSIS

PARAMETER		RESULT	MDL	DATE ANALYZED	METHOD	ANALYST
INORGANIC PARAMETERS						
Cation, meq/L	•	7.51				
Anion, meq/L		7.87				
<pre>% Difference,</pre>		2.33				
Receiving Temperature,	C	26.7		10/ 1/97 13:55		RCG

NOTE: Sample submitted not on ice.

Approved By:

& Dann

CHEMTECH-FORD

ANALYTICAL LABORATORIES

To: North Lily Mining Company attn: Paul Spor

390 South 600 East St. George, UT 84770

Group #: 18647 Lab #: 97-U011030 Project: SILVER CITY Sample Desc: Spillway

Date Sampled: 10/ 1/97 Date Submitted: 10/ 1/97 Date: 10/21/97

LAB SFF Date: 10/21/97

LAB 2 (50/L)

SAIZ (50/L)

SAIZ (50/L)

SAIZ (50/L)

SAIZ (50/L)

SAIZ (50/L)

SAIT (50/L)

PH 79 50 DIC (500/0)

Time Sampled: 11:30 Time Received: 13:55

CERTIFICATE OF ANALYSIS

	DATE					
PARAMETER	RESULT	MDL	ANALYZED	METHOD	analyst	
INORGANIC PARAMETERS						
Bicarbonate as HCO3, mg/L	298	1	10/ 7/97 10:30	SM 2320B	TM	
Carbonate as CO3, mg/L	78	1	10/ 7/97 10:30	SM 2320B	TM	
Alkalinity, Solids, mg/L	224	1	10/ 7/97 10:30	SM 2320B	TM	
Hydroxide as OH, mg/L	< 1	1	10/ 7/97 10:30	SM 2320B	TM	
Alkalinity, Total (CaCO3), mg/L	374	1	10/ 7/97 10:30	SM 2320B	TM	
Carbon Dioxide, mg/L	324	1	10/ 7/97 10:30	SM 4500 D	TM	
Chloride (D), mg/L	2,210	5	10/ 3/97 17:00	EPA 325.3	TM	
Conductance, Specific, umhos/cm	25,190	0.1	10/ 6/97 14:00	EPA 120.1	KRF	
Cyanide, Free, mg/L	128	5	10/14/97 17:00	ASTM D2036	TPH	
Cyanide (T), mg/L	43	1.6	10/10/97 15:00	ASTM D2036	TPH	
Cyanide, WAD, mg/L	34.7	0.8	10/14/97 17:00	ASTM D2036	TPH	
Fluoride, mg/L	3.3	0.5	10/13/97 16:00	EPA 340.2	EG	
Hardness, EDTA Titration, mg/L	873	50	10/11/97 11:00	EPA 130.2	TM	
Hardness Index: Very Hard Water						
Mercury (T), as Hg, mg/L	0.42	0.02	10/ 8/97 9:35	EPA 245.1	EG	
Nitrite, Nitrogen, mg/L	15.2	0.5	10/ 3/97 6:30	EPA 354.1	TM	
Nitrate/Nitrite-Nitrogen, mg/L	30	8	10/ 6/97 11:07	EPA 353.1	LH	
pH, units	8.50	0.05	10/ 1/97 15:45	EPA 150.1	LS	
Phosphorus, Ortho, mg/L	0.16	0.05	10/ 3/97 10:30	SM 4500E	AJP	
Sulfate, mg/L	9,210	2500	10/ 6/97 10:30	EPA 375.4	TM	

Approved By: A. M.

CHEIL CH-FORD

ANALYTICAL LABORATORIES



Date: 10/21/97

To: North Lily Mining Company

attn: Paul Spor 390 South 600 East St. George, UT 84770

Group #: 18647 Lab #: 97-U011030 Project: SILVER CITY Sample Desc: Spillway

Date Sampled: 10/ 1/97 Date Submitted: 10/ 1/97 Time Sampled: 11:30 Time Received: 13:55

CERTIFICATE OF ANALYSIS

	DATE					
PARAMETER	RESULT	MDL	Analyzed	METHOD	ANALYST	
INORGANIC PARAMETERS						
Total Dissolved Solids, mg/L	19,000	250	10/ 8/97 11:45	EPA 160.1	LS	
Total Suspended Solids, mg/L	13	1	9/30/97 15:45	EPA 160.2	LS	
Turbidity, NTU	8.24	0.05	10/ 1/97 15:40	EPA 180.1	LS	
Barium (T), as Ba, mg/L	0.041	0.005	10/ 8/97 12:30	EPA 200.7	LH	
Beryllium (T), as Be, mg/L	< 0.001	0.001	10/ 8/97 12:30	EPA 200.7	LH	
Calcium (T), as Ca, mg/L	358	0.1	10/20/97 3:59	EPA 200.7	LH	
Chromium(T), as Cr, mg/L	< 0.005	0.005	10/ 8/97 12:30	EPA 200.7	LH	
Copper (T), as Cu, mg/L	40.8	0.01	10/ 8/97 12:30	EPA 200.7	LH	
Iron (T), as Fe, mg/L	0.30	0.02	10/ 8/97 12:30	EPA 200.7	LH	
Magnesium (T), as Mg, mg/L	13.0	0.1	10/20/97 3:59	EPA 200.7	LH	
Manganese (T), as Mn, mg/L	0.18	0.01	10/ 8/97 12:30	EPA 200.7	LH	
Nickel (T), as Ni, mg/L	0.21	0.01	10/ 8/97 12:30	EPA 200.7	LH	
Potassium (T), as K, mg/L	- 303	0.1	10/20/97 3:59	EPA 200.7	LH	
Sodium (T), as Na, mg/L	5,130	2.0	10/20/97 3:59	EPA 200.7	LH	
Zinc (T), as Zn, mg/L	0.06	0.01	10/ 8/97 12:30	EPA 200.7	LH	
Antimony (T), as Sb, mg/L	< 0.4	0.4	10/ 9/97 13:33	EPA 200.9	EG	
Arsenic (T), as As, mg/L	0.26	0.05	10/ 8/97 9:06	EPA 200.9	EG	
Cadmium (T), as Cd, mg/L	< 0.01	0.01	10/10/97 13:27	EPA 200.9	EG	
Lead (T), as Pb, mg/L	0.35	0.05	10/14/97 8:53	EPA 200.9	EG	
Selenium (T), as Se, mg/L	< 0.02	0.02	10/13/97 9:30	EPA 200.9	EG	

Approved By:

J. Dran



To: North Lily Mining Company

attn: Paul Spor 390 South 600 East St. George, UT 84770

Group #: 18647 Lab #: 97-U011030 **Project: SILVER CITY** Sample Desc: Spillway

Date Sampled: 10/ 1/97 Date Submitted: 10/ 1/97 Time Sampled: 11:30 Time Received: 13:55

CERTIFICATE OF ANALYSIS

			DATE		
PARAMETER	RESULT	MDL	ANALYZED	METHOD	analyst
INORGANIC PARAMETERS					
Silver (T), as Ag, ug/L	6,170	400	10/ 8/97 15:20	EPA 200.9	EG
Thallium (T), as Tl, mg/L	0.04	0.01	10/ 9/97 9:49	EPA 200.9	EG
Cation, meq/L	249.9				
Anion, meq/L	262.6				
% Difference, %	2.48				
Receiving Temperature, c	26.7		10/ 1/97 13:55		RCG

NOTE: Sample submitted not on ice.

Approved By: D. L.

{generic.rpt}







To: North Lily Mining Company attn: Paul Spor 390 South 600 East St. George, UT 84770

Group #: 18647 Lab #: 97-U011031 **Project: SILVER CITY** Sample Desc: Overflow

Date Sampled: 10/ 1/97 Date Submitted: 10/ 1/97 Time Sampled: 11:45 Time Received: 13:55

CERTIFICATE OF ANALYSIS

PARAMETER	RESULT	MDL	DATE Analyzed	METHO	D ANALYST
INORGANIC PARAMETERS					
Bicarbonate as HCO3, mg/L	45	1	10/ 7/97 10	:30 SM 232	ов тм
Carbonate as CO3, mg/L	< 1	1	10/ 7/97 10		
Alkalinity, Solids, mg/L	22	1	10/ 7/97 10		OB TM
Hydroxide as OH, mg/L	< 1	1	10/ 7/97 10		OB TM
Alkalinity, Total (CaCO3), mg/L	37	1	10/ 7/97 10		OB TM
Carbon Dioxide, mg/L	35	1	10/ 7/97 10		O D TM
Chloride (D), mg/L	154	5	10/ 3/97 17		5.3 TM
Conductance, Specific, umhos/cm	2,576	0.1	10/ 6/97 1.4		0.1 KRF
Cyanide, Free, mg/L	6.4	0.5	10/14/97 17	:00 ASTM D	2036 TPH
Cyanide (T), mg/L	0.088	0.008	10/10/97 15	:00 ASTM D	2036 TPH
Cyanide, WAD, mg/L	0.04	0.016	10/14/97 17	:00 ASTM D	2036 TPH
Fluoride, mg/L	0.6	0.5	10/13/97 16	:00 EPA 34	0.2 EG
Hardness, EDTA Titration, mg/L	215	17	10/11/97 11	:00 EPA 13	0.2 TM
Hardness Index: Hard Water					
	0.12	0.02	10/8/97 9	:35 EPA 24	5.1 EG
Nitrite, Nitrogen, mg/L	0.9	0.125	10/ 3/97 6	:30 EPA 35	4.1 TM
Nitrate/Nitrite-Nitrogen, mg/L	< 8	8	10/ 6/97 11	:07 EPA 35	3.1 LH
pH, units	7.30	0.05	10/ 1/97 15	:45 EPA 15	0.1 LS
Phosphorus, Ortho, mg/L	0.04	0.01	10/ 3/97 10	:30 SM 450	OE AJP
Sulfate, mg/L	704	250	10/ 6/97 10	:30 EPA 37	5.4 TM

Approved By:



To: North Lily Mining Company attn: Paul Spor

attn: Paul Spor 390 South 600 East St. George, UT 84770

Group #: 18647 Lab #: 97-U011031 Project: SILVER CITY Sample Desc: Overflow

Date Sampled: 10/ 1/97 Date Submitted: 10/ 1/97 Time Sampled: 11:45 Time Received: 13:55

CERTIFICATE OF ANALYSIS

			DATE		
PARAMETER	RESULT	MDL	ANALYZED	METHOD	ANALYST
INORGANIC PARAMETERS					
Total Dissolved Solids, mg/L	1,540	10	10/ 6/97 14:45	EPA 160.1	LS
Total Suspended Solids, mg/L	2	1	9/30/97 15:45	EPA 160.2	LS
Turbidity, NTU	30.1	0.05	10/ 1/97 15:40	EPA 180.1	LS
Barium (T), as Ba, mg/L	0.112	0.005	10/ 8/97 12:30	EPA 200.7	LH
Beryllium (T), as Be, mg/L	< 0.001	0.001	10/ 8/97 12:30	EPA 200.7	LH
Calcium (T), as Ca, mg/L	76.4	0.1	10/ 8/97 12:30	EPA 200.7	LH
Chromium(T), as Cr, mg/L	< 0.005	0.005	10/ 8/97 12:30	EPA 200.7	LH
Copper (T), as Cu, mg/L	2.15	0.01	10/ 8/97 12:30	EPA 200.7	LH
Iron (T), as Fe, mg/L	0.44	0.02	10/ 8/97 12:30	EPA 200.7	LH
Magnesium (T), as Mg, mg/L	1.9	0.1	10/ 8/97 12:30	EPA 200.7	LH
Manganese (T), as Mn, mg/L	0.22	0.01	10/ 8/97 12:30	EPA 200.7	LH
Nickel (T), as Ni, mg/L	. 0.03	0.01	10/ 8/97 12:30	EPA 200.7	LH
Potassium (T), as K, mg/L	21.9	0.1	10/ 8/97 12:30	EPA 200.7	LH
Sodium (T), as Na, mg/L	319	0.2	10/ 8/97 12:30	EPA 200.7	LH
Zinc (T), as Zn, mg/L	0.30	0.01	10/ 8/97 12:30	EPA 200.7	LH
Antimony (T), as Sb, mg/L	0.04	0.02	10/ 9/97 13:33	EPA 200.9	EG
Arsenic (T), as As, mg/L	0.06	0.05	10/ 8/97 9:06	EPA 200.9	EG
Cadmium (T), as Cd, mg/L	0.02	0.01	10/10/97 13:27	EPA 200.9	EG
Lead (T), as Pb, mg/L	0.50	0.05	10/14/97 8:53	EPA 200.9	EG
Selenium (T), as Se, mg/L	< 0.02	0.02	10/13/97 9:30	EPA 200.9	EG

Approved By:

J. Shan



To: North Lily Mining Company

attn: Paul Spor 390 South 600 East St. George, UT 84770

Group #: 18647 Lab #: 97-U011031 Project: SILVER CITY Sample Desc: Overflow

Date Sampled: 10/ 1/97 Date Submitted: 10/ 1/97 Time Sampled: 11:45
Time Received: 13:55

CERTIFICATE OF ANALYSIS

PARAMETER	5 m 4 m m	100 T	DATE	1/mmii 0.5	2 M2 T WOM
FARAMEIER	RESULT	MDL	ANALYZED	METHOD	Analyst
INORGANIC PARAMETERS					
Silver (T), as Ag, ug/L	847	100	10/ 8/97 15:20	EPA 200.9	EG
Thallium (T), as Tl, mg/L	< 0.01	0.01	10/ 9/97 9:49	EPA 200.9	EG
Cation, meq/L	18.43				
Anion, meq/L	19.79				
% Difference,	3.55				
Receiving Temperature, C	26.7		10/ 1/97 13:55		RCG

NOTE: Sample submitted not on ice.

Approved By: J. Hanne

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